

radiation hypothesis of chemical reactivity, and suggests the following results for non-electrolytes:—The bond can be broken only by radiation of definite frequency ν , the most intense impact resulting only in ionisation. External illumination as a criterion should be large for unimolecular decomposition or transformation, considerable for reversible reactions, especially the effect due to the radiation exciting the endothermic process, and inappreciable for irreversible combination. Corresponding frequencies are selectively absorbed or emitted. The energy change is double, corresponding to the attainment of the critical unstable equilibrium and of the normal stable state. For the complete change in intrinsic energy U , $-U = nH(\nu - \nu')$ per mol. The system can accumulate absorbed radiant energy up to a limit of one quantum per electron. It emits in quanta, but absorbs and scatters continuously. The frequencies and energy changes are altered by solvents, but not by intermediate compounds.

December 13, 1921.—Mr. T. A. Coward, president, in the chair.—Laura E. Start: Sea Dayak fabrics and their decoration. The patterns of part of the group of Iban cloths collected during the Cambridge Expedition to the East Indian Archipelago in 1899 are traditional. They are symbolical, and in some cases designate the rank or tribe of the wearer. Anthropomorphs, zoomorphs, and phyllomorphs form the chief motives, and of these the animal patterns predominate. For the origin of the life-history of patterns, in which man, the frog, the crocodile, the shrew, and the tiger are used symbolically, we must go back to the Proto-Malay stock, from which the Iban probably sprang, or consider the patterns a development due to the Ibans themselves.

January 6.—Joint Meeting with the Manchester Sections of the Society of Chemical Industry, the Institute of Chemistry, and the Society of Dyers and Colourists.—Dr. Edward Arden in the chair.—A. Harden: Biochemical method. The methods and the difficulties of obtaining trustworthy results in biochemical research are due to the many factors which involve the living organisms. The occurrence of vitamins in foodstuffs, the differences between the various kinds of vitamins, the serious effects of ill-chosen diet for children, and the destruction of vitamins by heat and contact with air were discussed.

Society of Glass Technology, February 15.—The president, Dr. M. W. Travers, in the chair.—F. W. Hodkin and W. E. S. Turner: The relative advantages and disadvantages of limestone, burnt lime, and slaked lime as constituents of common glass batches containing soda ash and saltcake. Pt. II. The rates of melting depend upon the form of alkali and lime used as well as the relative amounts of lime and soda used. In the case of glass such as that used for bottles made on automatic machines, and containing about 8 per cent. of lime, the soda ash burnt lime batch appeared to be the most readily melted. With lime-containing glasses, the melting is assisted by the addition of small amounts of other oxides, particularly of magnesia. In the case of glasses containing about 12 per cent. of lime, the slaked lime containing batches generally melted most readily. A discussion followed the paper, and the remainder of the meeting was taken up with a debate on the subject of "The Melting of Glass." A number of questions on the subject had been submitted by members, and formed the basis of the discussion; this being continued from the Leeds meeting in November 1921, at the general request of members.

Diary of Societies.

MONDAY, MARCH 6.

- ROYAL INSTITUTION OF GREAT BRITAIN, at 5.—General Meeting.
INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—E. Ambrose and others: Discussion on E.H.T. Cable-testing.
ARISTOTELIAN SOCIETY (at University of London Club, 21 Gower Street, W.C.1), at 8.—S. N. Dasgupta: The Logic of the Vedanta.
ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—Special and Business Meetings.
ROYAL SOCIETY OF ARTS, at 8.—Prof. A. F. C. Pollard: The Mechanical Design of Scientific Instruments (3).
SOCIETY OF CHEMICAL INDUSTRY (at Chemical Society), at 8.
SURVEYORS' INSTITUTION, at 8.—B. P. Davies: The Analysis of Building Costs.
ROYAL GEOGRAPHICAL SOCIETY (at Æolian Hall), at 8.30.—C. E. N. Bromehead: The Influence of its Geography on the Development of London.
SOCIETY OF CHEMICAL INDUSTRY (London Section) (at Chemical Society), at 8.—W. Cullen: Gold Metallurgy of the Witwatersrand, Transvaal.

TUESDAY, MARCH 7.

- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Arthur Keith: Anthropological Problems of the British Empire. Series I.—Racial Problems in Asia and Australasia (3).
ROYAL SOCIETY OF ARTS (Dominions and Colonies Section), at 4.30.—Major Sir Humphrey Leggett: Tanganyika Territory (formerly German East Africa).
ANGLO-SWEDISH SOCIETY (at Swedish Hall, Harcourt Street, W.1), at 5.30.—Dr. F. A. Bather: The Sea-lilies of Gotland and Dudley.
ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—N. S. Lucas: Report on the Deaths which occurred in the Society's Gardens during 1921.—F. Balfour Browne: The Life-history of the Water-Beetle *Pelobius tardus* Herbst.—Dr. R. Broom: The Temporal Arches of the Reptilia.—F. W. Ulrich, Dr. H. Scott, and Dr. J. Waterston: Note on the Bat-Parasite *Cyclopodia greeffi*, and on a new Species of Hymenopterous (Chalcid) Parasite bred from it.—S. K. Montgomery: Direct Development in a Dromiid Crab.
INSTITUTION OF CIVIL ENGINEERS, at 6.—A. C. Walsh and W. F. Stanton: The Improvement of the Port of Valparaiso.
ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN (Technical Meeting), at 7.—H. W. Lee: A Chart for finding the Depth of Focus of a Lens.—H. Farmer: Direct Photography: a fully efficient alternative and addition to our present system.
RÖNTGEN SOCIETY (at Institution of Electrical Engineers), at 8.15.—L. H. Clark and B. D. Watters: Comparisons between the Therapeutic, Photographic and Ionisation Effects of Ultra-Violet and of Beta Radiation.—E. E. Burnside: Apparatus for deep X-ray Therapy.

WEDNESDAY, MARCH 8.

- INSTITUTE OF METALS (at Institution of Mechanical Engineers), at 10 A.M.—Dr. G. D. Bengough: Notes on the Corrosion and Protection of Condenser Tubes.—At 2.30.—F. Adcock: The Internal Mechanism of Cold-Work and Recrystallization in Cupro-Nickel.—Research Staff of the General Electric Company: The Effect of Impurities on Recrystallization and Grain Growth.—Dr. H. Moore and S. Beckinsale: Further Studies in Season-Cracking and its Prevention. Condenser Tubes.
GEOLOGICAL SOCIETY OF LONDON, at 5.30.—Baron F. Nopsca: The Geological Importance of the Atavistic Reptilian Fauna of the Upper Cretaceous of Transylvania.
ROYAL SOCIETY OF ARTS, at 8.—W. A. Appleton: The Proper Functions of Trade Unions.
INSTITUTION OF AUTOMOBILE ENGINEERS (at Institution of Mechanical Engineers), at 8.—A. A. Remington: The Design and Function of Laminated Automobile Suspension Springs.

THURSDAY, MARCH 9.

- INSTITUTE OF METALS (at Institution of Mechanical Engineers), at 10 A.M.—Prof. C. A. Edwards and A. J. Murphy: The Rate of Combination of Copper and Phosphorus at Various Temperatures.—Dr. W. Rosenhain: Some Cases of Failure in "Aluminium" Alloys.—Prof. F. C. Thompson and E. Whitehead: Some Mechanical Properties of the Nickel-Silvers.—Dr. D. Hanson and Marie L. V. Gayler: A Further Study of the Alloys of Aluminium and Zinc.—A. Westwood: The Assay of Gold Bullion.
ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. H. M. Lefroy: The Menace of the Insect Pest: The Balance of Life in Relation to Insect Pest Control (2).

ROYAL SOCIETY, at 4.30.—Prof. T. R. Merton and S. Barratt: The Spectrum of Hydrogen (Bakerian Lecture).

LONDON MATHEMATICAL SOCIETY (at Royal Astronomical Society), at 5.—W. H. Young: The Theory of Functions of Two Complex Variables.—Col. R. L. Hipsley: The Nodes of the Three Bar Sextic.—R. F. Whitehead: The Number of Solutions in Positive Integers of the Equation $yz + zx + xy = n$.—T. Stuart: The Determination of the Criterion to prevent "Hunting" in Hartnell's Governor.—N. Wiener: The Average Value of a Functional.—Lt.-Col. A. Cunningham: On Least Primitive Roots.

ROYAL COLLEGE OF PHYSICIANS, at 5.—Dr. M. Greenwood: The Influence of Industrial Employment on General Health (Milroy Lectures) (1).

CHILD-STUDY SOCIETY (at Royal Sanitary Institute), at 6.—Miss Coombs, Mrs. Bottrill, and others: Discussion on the Family Group System in Infant Schools.

OPTICAL SOCIETY (at Imperial College of Science and Technology), at 7.30.—T. Smith and J. S. Anderson: A Criticism of the Nodal Slide as an Aid in Testing Photographic Lenses.—A. J. Bull: A Non-polarising Spectrophotometer.—J. Guild: The Photometry of Optical Instruments.—T. Smith: A Projective Treatment of the Submarine Periscope.—A. J. Dalladay: Some Measurements of the Stresses Produced at the Surfaces of Glass by Grinding with Loose Abrasives.

INSTITUTE OF METALS (London Section), (at Sir John Cass Technical Institute), at 8.—Dr. D. Hanson: Microstructure and Physical Properties of Alloys.

FRIDAY, MARCH 10.

ROYAL ASTRONOMICAL SOCIETY, at 5.

PHYSICAL SOCIETY OF LONDON (at Imperial College of Science and Technology), at 5.—R. L. Smith-Rose: The Electromagnetic Screening of a Triode Oscillator.—Dr. H. P. Waran: A New Form of High Vacuum Automatic Mercury Pump.—W. N. Bond: Viscosity Determinations by means of Orifices and Short Tubes.

MALACOLOGICAL SOCIETY OF LONDON (at Linnean Society).

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. T. R. Merton: Problems in the Variability of Spectra.

SATURDAY, MARCH 11.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Ernest Rutherford: Radioactivity (2).

PUBLIC LECTURES.

(A number in brackets indicates the number of a lecture in a series.)

MONDAY, MARCH 6.

CITY OF LONDON (BOYS') SCHOOL, Victoria Embankment, at 5.30.—Miss Rosa Bassett: The Dalton Plan of Self-education (5).

UNIVERSITY COLLEGE, at 5.30.—A. R. Powys: The Preservation of Ancient Buildings.

TUESDAY, MARCH 7.

IMPERIAL COLLEGE—ROYAL SCHOOL OF MINES, at 5.30.—Col. N. T. Belaeuw: The Crystallisation of Metals (3).

KING'S COLLEGE, at 5.30.—F. H. Rolt: Accurate Measurements in Mechanical Engineering: The Use and Testing of Gauges (4).

LONDON SCHOOL OF ECONOMICS, at 6.—Sir Josiah C. Stamp: The Administrative Factor in Government (4).

WEDNESDAY, MARCH 8.

EAST LONDON COLLEGE, at 4.—Prof. F. E. Fritch: Certain Aspects of Freshwater Algal Biology (4).

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN (Hunter Street, W.C.1), at 5.—Dr. H. H. Dale: Some Recent Developments in Pharmacology (3).

KING'S COLLEGE, at 5.15.—Prof. N. Bohr: The Quantum Theory of Radiation and the Constitution of the Atom (1).

HORNIMAN MUSEUM (Forest Hill), at 6.—W. W. Skeat: The Living Past in Britain (7).

UNIVERSITY COLLEGE, at 8.—The Current Work of the Biometric and Eugenics Laboratory (4). E. C. Rhodes: The Relation of Caries in the Teeth of School Children to Health and Home Conditions.

THURSDAY, MARCH 9.

INFANTS' HOSPITAL (Vincent Square, S.W.1), at 4.—Dr. W. M. Feldman: The Physiology of the Infant.

SCHOOL OF ORIENTAL STUDIES, at 5.—Dr. L. D. Barnett: The Hindu Culture of India (2).

UNIVERSITY COLLEGE, at 5.15.—Sir Robert Blair: The Education Programme of the Labour Party.—Prof. J. E. G. de Montmorency: Welsh and Irish Tribal Customs (5).

KING'S COLLEGE, at 5.30.—Dr. O. Faber: Reinforced Concrete (8).

FRIDAY, MARCH 10.

METEOROLOGICAL OFFICE (South Kensington, S.W.7), at 3.—Sir Napier Shaw: The Structure of the Atmosphere and the Meteorology of the Globe (8).

TAVISTOCK CLINIC FOR FUNCTIONAL NERVE CASES (at Mary Ward Settlement, Tavistock Place, W.C.1), at 5.30.—Dr. H. C. Miller: The New Psychology and its Bearing on Education (7).

SATURDAY, MARCH 11.

LONDON DAY TRAINING COLLEGE, at 11.—Prof. J. Adams: The School Class (8).

HORNIMAN MUSEUM (Forest Hill), at 3.30.—Miss M. A. Murray: Cleopatra's Needle and Sun-worship.

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